Dynamic Science Data Services for Display, Analysis and Interaction in Widely-Accessible, Web-Based Geospatial Platforms, Phase I

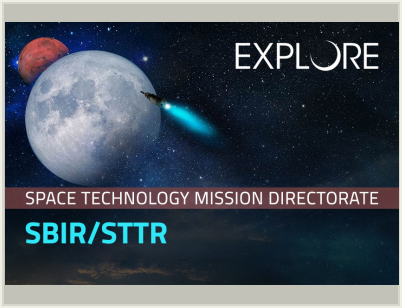
Completed Technology Project (2007 - 2007)

Project Introduction

TerraMetrics, Inc., proposes an SBIR Phase I R/R&D program to investigate and develop a key web services architecture that provides data processing, storage and delivery capabilities and enables successful deployment, display and visual interaction of diverse, massive, multi-dimensional science datasets within popular web-based geospatial platforms like Google Earth, Google Maps, NASA's World Wind and others. The proposed innovation exploits the use of a wired and wireless, network-friendly, wavelet-compressed data format and server architecture that extracts and delivers appropriately-sized blocks of multi-resolution geospatial data to client applications on demand and in real time. The resulting format and architecture intelligently delivers client-required data from a server, or multiple distributed servers, to a wide range of networked client applications that can build a composite, user-interactive 3D visualization of fused, disparate, geospatial datasets. The proposed innovation provides a highly scalable approach to data storage and management while offering geospatial data services to client science applications and a wide range of client and connection types from broadband-connected desktop computers to wireless cell phones. TerraMetrics offers to research the feasibility of the proposed innovation and demonstrate it within the context of a live, server-supported, Google Earth-compatible client application with high-density, multi-dimensional NASA science data.

Anticipated Benefits

1) Military/Intelligence provisioning of immediate access to time- and quality-critical imagery and terrain data assets to battlefield/mobile clients 2) Commercial television map and weather applications; next-generation GIS and scientific data analysis simulation/modeling applications 1) Dissemination of large Earth science datasets into publicly-available, geospatial web applications including imagery (e.g., multi-band, hyperspectral) and other 2D datasets, and 3D volumetric datasets (e.g., real-world and modeling origins)



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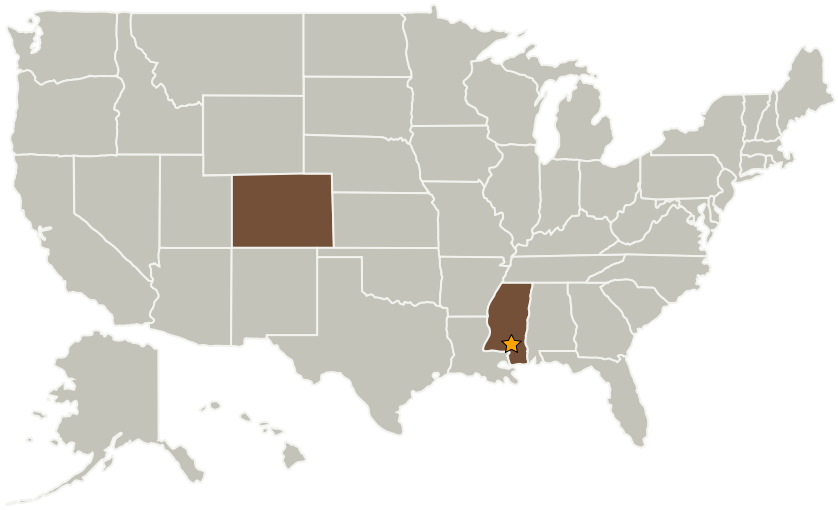
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
TerraMetrics, Inc.	Supporting Organization	Industry	Littleton, Colorado

Primary U.S. Work Locations	
Colorado	Mississippi

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

Nathan A Sovik

Principal Investigator:

Gregory Baxes

Technology Areas

Primary:

- TX11 Software, Modeling, Simulation, and Information Processing
  - TX11.6 Ground Computing
    - TX11.6.3 Exascale Supercomputer File System